

=> d his

(FILE 'HOME' ENTERED AT 14:24:05 ON 21 OCT 2004)
FILE 'CA' ENTERED AT 14:24:58 ON 21 OCT 2004
L1 6 S FRANCHINI G?/AU AND 1989/PY
L2 2 S L1 AND TEMPERATURE
L3 90799 S (PHASE OR RESPONSE OR PROPERTY OR PARAMETER OR
BOUNDARY) (3A) (PLOT? OR DIAGRAM OR GRAPHIC? OR GRAPH OR DISPLAY?)
L4 35943 S L3 AND TEMPERATURE
L5 14183 S L4 AND (COMPOSITION OR CONCENTRATION)
L6 689 S L5 AND (OIL OR EMULSION OR MICEL?)
L7 39408 S L3 AND (DETERMIN? OR MEASUR? OR CREAT? OR CHARACTERI?)
L8 402 S L6 AND L7
L9 16 S L6 AND (3D OR 3 D OR 3 DIMENSION? OR THREED OR THREE D OR THREE
DIMENSION?)
L10 125 S L8 AND (VISCO? OR CLOUD? OR TURBID?)
L11 138 S L9-10
L12 73 S L11 NOT PY>1998
L13 75 S L2,L12

=> d bib,ab,kwic l13 1-75

L13 ANSWER 10 OF 75 CA COPYRIGHT 2004 ACS on STN
AN 127:323037 CA
TI Study of the **Viscosity** of Nonionic Surfactant/Deuterium Oxide Mixtures
and of the Self-Diffusion Coefficient of the Surfactant Approaching the
Liquid/Liquid Coexistence Curve
AU Lesemann, M.; Martin, A.; Belkoura, L.; Fleischer, G.; Woermann, D.
CS Institut fuer physikalische Chemie, Universitaet Koeln, Cologne, D-
50939, Germany
SO Langmuir (1997), 13(20), 5289-5293
AB Plots of the **temp.** dependence of the shear **viscosity** η of C12E5/D2O
mixts. with **compsns.** in the range $0.60 \times 10^{-2} < y < 10.08 \times 10^{-2}$ (crit.
compn. $y_c = 1.08 \times 10^{-2}$; y , mass fraction of C12E5) are S-formed (a
shallow min. at a lower **temp.** $T_{\eta, \text{min}}$ and a max. at a higher **temp.**
 $T_{\eta, \text{max}}$). The **measurements** are carried out in the **temp.** range $5^\circ\text{C} < T <$
 TP ; $TP \approx 30^\circ\text{C}$ approaching the lower part of the binodal curve (TP , **temp.**
of phase sepn. of the mixt.). In the **temp.** range ($TP - T_{\eta, \text{max}}$) the
viscosity decreases with increasing **temp.** At **compsns.** $y < 0.60 \times 10^{-2}$
the **viscosity** decreases with increasing **temp.** monotonically. The self-
diffusion coeff. of C12E5 in C12E5/D2O mixts. is **measured** in the same
temp. and **compn.** range. The findings of both types of expts. are
rationalized in terms of a model developed by Nilsson et al. (1983).
The results give support to the hypothesis that the **characteristic**
features of the **temp.** and **compn.** dependence of both transport coeffs.
in the large aggregate region of the **phase diagram** have a common cause:
The structural dynamics of the large **micellar** aggregates increases
approaching the liq./liq. coexistence curve at **compsns.** $y > y_c$. **Concn.**
fluctuations with long range correlations appear to be involved in this
process.

L13 ANSWER 14 OF 75 CA COPYRIGHT 2004 ACS on STN
AN 125:302039 CA
TI Rheology of a Lower Critical Solution **Temperature** Binary Polymer Blend in the Homogeneous, Phase-Separated, and Transitional Regimes
AU Kapnistos, M.; Hinrichs, A.; Vlassopoulos, D.; Anastasiadis, S. H.; Stammer, A.; Wolf, B. A.
CS Foundation for Research TechnologyHellas, Institute of Electronic Structure Laser, Heraklion, 71110, Greece
SO Macromolecules (1996), 29(22), 7155-7163
AB Small amplitude oscillatory shear rheol. is employed in order to investigate the linear **viscoelastic** behavior of the lower crit. soln. **temp.** blend polystyrene/poly(vinyl Me ether), PS/PVME, as a function of **temp.** and **comprn.** At low **temp.**, where the mixt. is homogeneous, the dependence of the zero shear **viscosity** (η_0) on **concn.** was **measured** and was well-described by means of a new mixing rule, based on surface fractions instead of vol. fractions. Shift factors from time-**temp.** superposition (TTS) exhibit a Williams-Landel-Ferry (WLF) behavior. As the macrophase sepn. **temp.** is approached (the **phase diagram** being established by **turbidity measurements**), the blend exhibits a thermorheol. complex behavior. A failure of TTS is obsd. at low frequencies, both in the homogeneous pretransitional and in the two-phase regimes. Its origin is attributed to the enhanced **concn.** fluctuations, which exhibit a crit. slowing down near the phase boundary in the homogeneous regime, and in the two-phase morphol. inside the phase-sepd. regime. The anomalous pretransitional behavior can be quantified using a recent mean field theory, yielding the spinodal **temp.** Furthermore, in the two-phase region an intermediate region of enhanced moduli at low frequencies is obsd., followed by flow at even lower frequencies, which is attributed to the two-phase structure. The linear **viscoelastic** properties of the phase-sepd. blends are, to a first approxn., adequately described by a simple incompressible **emulsion** model considering a suspension of droplets of one coexisting phase in the matrix of the other phase.

L13 ANSWER 15 OF 75 CA COPYRIGHT 2004 ACS on STN
AN 125:178044 CA
TI **Phase diagram** of water-sodium perfluorodecanoate-sodium decylsulfonate system
AU Akune, Takeshi; Abe, Mitsuhiro; Murata, Yoshio; Maki, Toshiya; Moroi, Yoshikiyo; Furuya, Hiromi; Tanaka, Mitsuru
CS Fac. Sci., Fukuoka Univ., Fukuoka, 814-01, Japan
SO Journal of Colloid and Interface Science (1996), 181(1), 136-141
AB **Phase diagrams** of Na perfluorodecanoate-water and Na decanesulfonate-water systems were drawn from changes of solv. and crit. **micelle concn.** (CMC) with **temp.** The mixed CMC values of the 2 surfactants of different **comprns.** indicate that 2 kinds of **micelles** are formed; one is a fluorocarbon-dominant **micelle** and the other is a hydrocarbon-rich **micelle** with some fluorocarbon surfactants. The ppt. from aq. soln. contg. the 2 surfactants below the **micellization temp.** of the mixed surfactants (analyzed by x-ray diffraction) is a mixt. of the 2

surfactant crystals. An anal. was made of the **temp.** dependence of the elec. cond. of an aq. soln. contg. suspended ppts. which were formed at low **temp.** from soln. of a certain molar ratio of the 2 surfactants, and the **phase diagram** of the 3-component system was constructed. The 3-dimensional **phase diagram** was quite different from that of mixed surfactants which are able to form mixed **micelles** of any **comprn.**

L13 ANSWER 22 OF 75 CA COPYRIGHT 2004 ACS on STN

AN 123:66578 CA

TI Investigations of the Phase Changes of Nonionic Surfactants Using Microscopy, Differential Scanning Calorimetry, and Rheology. 1. Synperonic A7, a C13/C15 Alcohol with 7 mol of Ethylene Oxide

AU Dimitrova, G. T.; Tadros, Th. F.; Luckham, P. F.

CS Zeneca Agrochemicals (formerly part of the ICI group), Jealott's Hill Research Station, Bracknell/Berkshire, RG12 6EY, UK

SO Langmuir (1995), 11(4), 1101-11

AB The **phase diagram** of a nonionic surfactant (e.g., Synperonic A7 (C13/C15 alc. with 7 mol of C₂H₄ oxide)) was studied by using polarizing microscopy, DSC, and rheol. **measurements**. The various phases produced were studied from the texture obsd. at various surfactant **concns** by using polarizing microscopy. At 20°, the surfactant produced hexagonal (middle phase) structures when the **concn.** was increased > 30%. This middle phase structure changed to a lamellar (neat phase) structure at **concn.** .gtorsim. 55%. The neat phase remained up to a **concn.** of ~ 85%. Microscopic studies were also carried out as a function of **temp.** (at const. surfactant **concn.**). This established the **temp.** at which phase transition from liq. cryst. structure to isotropic liq. phases occurred. Some results on these phase changes were also obtained by using DSC **measurements**. Both steady state and oscillatory **measurements** were carried out as a function of surfactant **concn.** and **temp.** At surfactant **concns.** < 30% (i.e., in the L1 region), the **viscosity-temp.** curves showed a max. that shifted to lower **temp.** as the surfactant **concn.** increased. The initial increase in **viscosity** with increase of **temp.** is attributed to aggregation and/or change in the shape of the **micelle**, while the redn. is thought to be due to the breakdown of the **micellar** structure.

Viscoelastic measurements of the concd. surfactant solns. (30-85%) (i.e., in the hexagonal and lamellar regions) were carried out at 20°. The moduli-**concn.** curves show 2 maxima at ~ 45 and ~ 70% and this is explained in terms of the structural changes that occur in the system as the **concn.** is increased. **Measurements** as a function of **temp.** showed a rapid redn. in the moduli values at a crit. **temp.** at which the liq. crystal structure undergoes "melting" to form a liq.-like structure. The rheol. results were used to establish the **phase diagram** and the results were compared with those obtained by using microscopy and DSC.

L13 ANSWER 24 OF 75 CA COPYRIGHT 2004 ACS on STN

AN 122:249067 CA

TI Effect of NaCl on a Nonionic Surfactant Microemulsion System

AU Ajith, S.; Rakshit, Animesh Kumar

CS Faculty of Science, M. S. University of Baroda, Baroda, 390 002, India

SO Langmuir (1995), 11(4), 1122-6
AB Various types of microstructure and macroscopic phase changes of the pseudoternary system alkane/Brij 35 + propanol/H₂O (studied in the presence of different amts. of NaCl at different **temps.**) are described. **Viscosity** and conductance studies reveal that the system at 80% surfactant (S) (where S indicates Brij 35 and 1-propanol together) probably exists as a bicontinuous microemulsion at all H₂O fractions even in the presence of NaCl. In the presence of NaCl, the pseudoternary **phase diagrams** of these systems change with change of **temp.** Increasing the **concn.** of NaCl brings down the Winsor I → III transition **temp.** and at 2.5 M NaCl, the system exists as Winsor III along the entire range of **temp.** studied (30-70°). However a Winsor III → II transition was not obsd. in this case in this **temp.** range and also within the NaCl **concn.** range studied. The **cloud** point of the microemulsions and the contact angle of these systems with a Téflon surface were also **dtd.** The contact angles indicate similar structure over the entire range of **oil/H₂O** ratios.

L13 ANSWER 29 OF 75 CA COPYRIGHT 2004 ACS on STN
AN 121:206560 CA
TI Characterization of a Poly(ethylene oxide)-Poly(propylene oxide) Triblock Copolymer (EO27-PO39-EO27) in Aqueous Solution
AU Glatter, Otto; Scherf, Guenther; Schillen, Karin; Brown, Wyn
CS Institute of Physical Chemistry, University of Graz, Graz, A-8010, Austria
SO Macromolecules (1994), 27(21), 6046-54
AB The poly(ethylene oxide)-poly(propylene oxide) triblock copolymer (EO27-PO39-EO27) was studied in aq. soln. in a wide range of **temps.** and **concs.** A **phase diagram** is presented which is based on small-angle x-ray scattering, ultrasonic speed **measurements**, differential scanning calorimetry, low-shear **viscometry**, and light transmission **measurements**. A broad transition from unimers to **micelles** with increasing **temp.** is found. The **micelles** have close to spherical symmetry with a core-shell structure and an outer layer that can be described as a star **micelle**. The **micelles** grow in size with **temp.**, and phase sepn. with **clouding** takes place at **temp.** >85°. A stiff gel is found at **concs.** >24% by wt.

L13 ANSWER 30 OF 75 CA COPYRIGHT 2004 ACS on STN
AN 121:66331 CA
TI Phase Behavior and Properties of a Microemulsion in the Presence of NaCl
AU John, Ajith Cherian; Rakshit, Animesh Kumar
CS Faculty of Science, M.S. University of Baroda, Baroda, 390 002, India
SO Langmuir (1994), 10(7), 2084-7
AB The effect of salinity, particularly high NaCl **concs.**, on the **phase diagram** of the pseudoternary system cyclohexane/sodium dodecyl sulfate + propanol/water was studied at various **temps.** Drastic changes were obsd. with increasing salinity and a three-phase zone appears at approx. 1 M **concn.** At still higher **concs.** only two-phase regions remain. The vol. **measurement** with increasing salinity reveals three

types of Winsor formations (Winsor I, II, and III). The optimal salinity **detd.** by **plotting** solubilization **parameters** of **oil** V_o/V_m and that of water V_w/V_m against NaCl **concn.** declines with **temp.** increment and attains a constancy above 70° . Physicochem. properties, viz. conductance, **viscosity**, and adiabatic compressibility, investigated for a one-phase microemulsion in the presence of NaCl prove the existence of W/O, O/W, and bicontinuous structures in the system. An unexpected and surprising decrease in the cond. of W/O samples with elevation in **temp.** was also noticed.

L13 ANSWER 35 OF 75 CA COPYRIGHT 2004 ACS on STN
AN 119:273888 CA
TI **Cloud** point phenomena in the phase behavior of alkyl polyglucosides in water
AU Balzer, Dieter
CS Huels AG, Marl, Germany
SO Langmuir (1993), 9(12), 3375-84
AB Detailed investigations show that, for very narrow ranges of structure, alkyl polyglucosides have lower consolute **temps.** Compared with ethoxylates, the effects of electrolytes are very unusual. Thus, all inorg. salts, with only small differences, result in a distinct redn. in the **cloud** point, whereas alkali-metal salts have a strong hydroscopic effect. The electrolyte sensitivity is very much higher than for the ethoxylates. The effects of the alkyl polyglucosides can be explained on the assumption that there is a neg. elec. charge on the surface of the **micelles** while the ethoxylates are more or less uncharged. This is demonstrated by the effect of ionic surfactants on the **cloud** point, and by direct **measurements** of the ζ potential both in emulsions nad in **micelles**.

L13 ANSWER 36 OF 75 CA COPYRIGHT 2004 ACS on STN
AN 118:198923 CA
TI Aggregation behavior of hexaethylene glycol decyl ether/dipalmitoylphosphatidylcholine mixture in aqueous dispersion
AU Inoue, Tohru; Motoyama, Ryosaku; Miyakawa, Kenji; Shimozawa, Ryosuke
CS Fac. Sci., Fukuoka Univ., Fukuoka, 814-01, Japan
SO Journal of Colloid and Interface Science (1993), 156(2), 311-18
AB The mixt. of hexaethylene glycol decyl ether (C10E6) and DPPC assumes diverse aggregation states in aq. dispersion, depending on the **comprn.** and **temp.** Accordingly, the vesicle-to-mixed-**micelle** transformation occurring in this system exhibits a remarkably different behavior below and above 35.5° . The **phase diagram** of the aq. C10E6/DPPC mixt. was constructed based on the **turbidity**, quasi-elastic light scattering, and DSC **measurements**. The **characteristic** feature of this system is the appearance of a phase sepn. region, analogous to the phenomenon obsd. in aq. solns. of polyoxyethylene-type nonionic surfactants at **temps.** above the **cloud** points. The **temp.**-induced reversible transformation between mixed **micelles** and vesicles is also an interesting feature of this system, which has rarely been obsd. in other aq. dispersions of surfactant/phospholipid mixts.

L13 ANSWER 42 OF 75 CA COPYRIGHT 2004 ACS on STN
AN 116:46763 CA
TI Theoretical and experimental **determinations** of the crossover from dilute to semidilute regimes of **micellar** solutions
AU Carale, Teresa R.; Blankschtein, Daniel
CS Cent. Mater. Sci. Eng., Massachusetts Inst. Technol., Cambridge, MA, 02139, USA
SO Journal of Physical Chemistry (1992), 96(1), 459-67
AB A theor. framework for predicting the crossover surfactant **concn.** (X^*) marking the transition from dil. to semidilute to soln. regimes of **micellar** solns. is presented. In the dil. regime, the **micellar** soln. consists of identifiable, rodlike **micelles** which are singly dispersed in the solvent, whereas in the semidilute regime it consists of a transient network of entangled rodlike **micelles**. The theor. formulation incorporates the unique salient features of the **micellar** system, including the self-assembling nature, polydispersity, and flexibility of the rodlike **micelles** present in soln. This general theor. description is then used to examine the possible occurrence of a crossover from dil. to semidilute regimes in aq. solns. of the nonionic surfactant n-dodecyl hexaethylene oxide (C12E6). In the C12D6-H₂O system, the X^* vs. **temp.** crossover **concn.** curve intersects the coexistence curve, delineating the boundary between the 1- and 2-phase regions of the **phase diagram**, in the vicinity of the lower consolute (crit.) point, thus bisecting the **phase diagram** into dil. and semidilute regimes. It is noteworthy that the X^* values predicted by using the full **micellar** size distribution agree well with those predicted under the assumption of monodisperse **micelles** having an aggregation no. n , corresponding to $\langle n \rangle_w$, the wt.-av. **micelle** aggregation no. An attempt is also made to est. exptl. the C12E6 crossover **concn.** (X^*) based on a comparison of the predicted dil.-soln. **viscosities**, calcd. in the context of a generalized M. Doi-S. Edwards (1978) theory applied to flexible, polydisperse rodlike **micelles**, with measured **viscosities** as a function of C12E6 **concn.** and **temp.** The exptl. deduced X^* values compared favorably with the theor. predicted ones. As in the case of X^* , it is noteworthy that predicted **viscosities** (using the full **micellar** size distribution) are in close agreement with those predicted under the assumption of monodisperse **micelles** having an aggregation no., $n = \langle n \rangle_w$. There is also an interesting **temp.** dependence of the **viscosity** vs. C12E6 **concn.** curves. At very low surfactant **concs.**, the **viscosity** follows the conventional behavior; i.e., it decreases with increasing **temp.** Beyond a certain surfactant **concn.**, the **temp.** dependence is reversed; i.e., the **viscosity** increases with increasing **temp.** An interpretation of this behavior in the context of **micellar** growth is suggested. A discussion of the implications of the new findings for modeling the phase behavior of aq. **micellar** solns. contg. nonionic surfactants of the alkyl polyethylene oxide (C_iE_j) type is also presented.

L13 ANSWER 44 OF 75 CA COPYRIGHT 2004 ACS on STN
AN 115:120698 CA
TI Nonionic surfactant phase behavior. The effect of CH₃ capping of the

terminal OH. Accurate **measurements** of **cloud** curves
AU Conroy, J. P.; Hall, C.; Leng, C. A.; Rendall, K.; Tiddy, G. J. T.;
Walsh, J.; Lindblom, G.
CS Dep. Phys. Chem., Univ. Umea, Umea, Swed.
SO Progress in Colloid & Polymer Science (1990), 82 (Surfactants Macromol.:
Self-Assem. Interfaces Bulk), 253-62
AB **Phase diagrams** were **detd.** by optical microscopy for several
polyoxyethylene surfactants where the terminal OH group is replaced by
OMe (surfactants denoted C_nEO_mOMe). The derivs. studied were
C₁₂EO₄OMe, C₁₂EO₆OMe, and C₁₂EO₈OMe. In addn., a **phase diagram** is
given for the conventional nonionic C₁₂EO₂. Changing OH to OMe has a
drastic effect on phase behavior at higher **temps.** (>50 °C), reducing
mesophase upper **temp.** limits and the **cloud temp.** (T_c) by 20-30 °C.
Phase transitions that occur below 20 °C and the mesophase sequence
with increasing surfactant **concns.** are almost unaltered by Me
substitution. Accurate **cloud**-curve **measurements** are reported for
C₈EO₄, C₁₂EO₄, C₁₂EO₈, C₁₆EO₆, C₁₆EO₈, and C₂₂ = EO₆ (hexaethylene
glycol-cis-13-docosanyl ether, erucyl EO₆). From these curves,
accurate values of the crit. surfactant **concn.** and **temp.** for the lower
consolute boundary are derived. All the data support the hypothesis
that two very different processes exist for nonionic surfactant
clouding, one due to crit. dewetting of EO chains (similar to EO
polymer **clouding**) and the second arising from a rod/disk **micelle** shape
change. Finally, surfactant self-diffusion **measurements** are reported
for the two reversed bicontinuous cubic (V₂) phases of C₁₂EO₂. These
are similar for both phases and to not allow any structural difference
to be **detd.**

L13 ANSWER 49 OF 75 CA COPYRIGHT 2004 ACS on STN
AN 113:12580 CA
TI **Phase diagrams** of nonionic polymer-water systems: experimental and
theoretical studies of the effects of surfactants and other cosolutes
AU Karlstroem, Gunnar; Carlsson, Anders; Lindman, Bjoern
CS Chem. Cent., Univ. Lund, Lund, S-221 00, Swed.
SO Journal of Physical Chemistry (1990), 94(12), 5005-15
AB An exptl. investigation of the interactions between nonionic polymers,
such as ethyl(hydroxyethyl)cellulose and poly(ethylene oxide), and
small mols. (alcs., inorg. salts, and surfactants) in soln. is
presented and discussed. The exptl. tool in the investigation is **cloud**
point (CP) **measurements**. The studied polymers belong to a class of
colloids which displays a decreased solv. with increasing **temp.** in aq.
(and certain nonaq.) solns. At the CP **temp.**, the system is transformed
from a single isotropic soln. to a two-phase system. If binding of the
cosolutes occurs, this may lead to either an increase or a decrease in
polymer solv. Alternatively, the cosolutes interact preferably with
the solvent and thereby affect the solv. of the polymer. A
particularly strong effect on the polymer solv. is obtained for ionic
surfactants in the presence of relatively low **concn.** of electrolytes,
where a min. in the CP curve is obsd. at low surfactant **concns.** A
theor. model based on Flory-Huggins polymer theory is shown to be
capable of describing the obsd. phase behavior. In this model the

clouding in the pure polymer-water system is due to an equil. between polar and nonpolar conformers of the polymer segments. The exptl. obsd. phase behavior can then be modeled if there is a strong attraction between the surfactant and the polymer in its polar conformation, a weaker but still strong attraction between the nonpolar segments and the surfactant, and finally a weak attraction between the surfactant and water. Comparison between theor. and exptl. data gives new insight into the interactions on a mol. level. It is indicated that, at temps. close to the CP, the surfactant binds to the polymer as single mols. or small **micelles**, whereas at lower temps. it binds as larger **micelles**.

L13 ANSWER 50 OF 75 CA COPYRIGHT 2004 ACS on STN
AN 112:186320 CA
TI Phase equilibria of nonionic surfactant-water systems as a function of **temperature** and pressure: effect of mixing of surfactants
AU Nishikido, Nagamune
CS Fac. Sci., Fukuoka Univ., Fukuoka, 814-01, Japan
SO Journal of Colloid and Interface Science (1990), 136(2), 401-7
AB The **temp.**-pressure **phase diagrams** of mixed nonionic surfactants (tetra- and hexaoxyethylene dodecyl ether, C12E4 + C12E6) and nonionic + anionic surfactants (C12E4 + SDS) vs. water systems at const. **concn.** were **detd.** through the change in transmittance of the soln. The **phase diagram** of these systems, the intermicellar attractive interactions causing the **clouding** phenomenon, and the Krafft phenomenon of nonionic surfactants in water are discussed. The Krafft **temp.** (TK) of mixed (C12E4 + C12E6) in water were obtained exptl. at high pressure (60-350 MPa) and the dependence of TK on the mixing (**micelle**) **compn.** showed that different components C12E4 and C12E6 are completely miscible in both the **micellar** state and the hydrated solid state. In the **phase diagram** of the mixed (C12E4 + SDS)-water system, a slightly **turbid** aq. phase was obsd. in place of the lamellar phase and the so-called surfactant phase which exist above the **cloud temp.** in pure C12E4-water systems. In addn., 2 different solid forms are obsd. at high pressures, and this implies that different components C12E4 and SDS are completely miscible in the **micellar** state, but immiscible in the hydrated solid state.

L13 ANSWER 53 OF 75 CA COPYRIGHT 2004 ACS on STN
AN 111:9275 CA
TI Solution properties of homogeneous polyglycerol dodecyl ether nonionic surfactants
AU Sagitani, Hiromichi; Hayashi, Yoshie; Ochiai, Michio
CS Yokohama Res. Lab., Pola Corp., Yokohama, Japan
SO JAOCs, J. Am. Oil Chem. Soc. (1989), 66(1), 146-52
AB The synthesis and soln. properties of di-, tri- and tetraglycerol monododecyl ethers (A) were described. The phase behavior, surface tension, **cloud** point, and HLB value of these surfactants in aq. solns. and in mixed solns. of water/oil were investigated and compared with values for polyoxyethylene dodecyl ether (I). The surface tension **measurements** showed that A had sufficiently low values of surface

tension and crit. **micellization concn.** (cmc) to serve as useful nonionic surfactants. The mesophases appearing in the A systems were more stable in a high **temp.** range than the mesophases of the I systems. The **cloud** point and HLB data indicated that addn. of one glycerol group was equiv. to the addn. of three oxyethylene units, as far as the hydrophilic property was concerned. The **phase diagrams** of the A/dodecane/water systems showed that the solubilizing and emulsifying powers of A were greater than those of I. The polyglycerol chain could be even more useful as the hydrophilic part of nonionic surfactants than the conventional oxyethylene chain.

L13 ANSWER 54 OF 75 CA COPYRIGHT 2004 ACS on STN
AN 110:219469 CA
TI Novel phase behavior in three-component oil-water-surfactant systems: a truncated isotropic channel in the oil-rich regime
AU Findenegg, G. H.; Hirtz, A.; Rasch, R.; Sowa, F.
CS Ruhr-Univ. Bochum, Bochum, D-4630/1, Fed. Rep. Ger.
SO Journal of Physical Chemistry (1989), 93(11), 4580-7
AB The phase behavior of 3-component systems of the type H₂O + hydrocarbon + poly(oxyethylene) alkyl ether (C₈E₄ and C₁₀E₅) was studied at **temps.** below the phase inversion. A narrow one-phase region was found in the oil-rich corner, which intrudes into the central miscibility gap between water and oil. At low **temp.**, the molar ratio of H₂O and surfactant in this phase corresponds to 2 H₂O mols. per oxyethylene group of the surfactant, and thus this phase may represent a hydrate strongly swollen with oil. As the **temp.** is raised, this region of one-phase stability becomes sepd. from the main one-phase region at higher surfactant **concns.** and shrinks to a point at which this phase decomp. into 2 other liq. phases at a **temp.** T_{max}. Below this **temp.**, the one-phase region is connected with 2 narrow three-phase regions, one of which disappears at a lower crit. end point while the other extends to much lower **temp.** **Measurements** of the densities, **viscosities**, and interfacial tensions at three-phase coexistence are also presented and are consistent with the proposed **phase diagram**.

L13 ANSWER 55 OF 75 CA COPYRIGHT 2004 ACS on STN
AN 110:33138 CA
TI Conductometric titrations of polyprotic acids in nonaqueous mixed solvents. Effects of **temperature** and composition of the solvent mixture
AU Franchini, Giancarlo; Marchetti, Andrea; Preti, Carlo; Tassi, Lorenzo; Tosi, Giuseppe
CS Dep. Chem., Univ. Modena, Modena, 41100, Italy
SO Analytical Chemistry (1989), 61(2), 177-84
AB The effects of **temp.** and compn. of the solvent mixts. on the shape and anal. recoveries of conductometric titrns. of polyprotic acids were studied for the solvent system 2-methoxyethanol/ethane-1,2-diol operating at -10, 25, 50, and 75°. The N- or chair-shape of the titrn. curves depends on the physicochem. properties of the solvent, on the **temp.**, and on the acid solute to be titrated; in particular the influence of the distance between the carboxylic groups is discussed.

Titrns. performed in 2-methoxyethanol are assocd. in general with N-shaped curves, which however turn to chair-shaped as the **temp.** increases. Ethane-1,2-diol always produces chair-shaped curves as a consequence of its greater dissocg. power the titrn. formed adducts. The study of the titrns. of phthalic acid in some mixts. of the above solvents exhibited behaviors consistent with previous observations regarding the existence of a particular "limiting mixt." which separates the solvent system under study into two well-defined groups ($0 \leq \chi_{\text{ethane-1,2-diol}} < \text{"limiting mixt."}$ and $\text{"limiting mixt."} < \chi_{\text{ethane-1,2-diol}} \leq 1$). The feasibility of the resoln. of acid mixts. was demonstrated by titrating citric acid in the above solvents.

L13 ANSWER 61 OF 75 CA COPYRIGHT 2004 ACS on STN
AN 106:86713 CA
TI On an automated device for the **determination** of isotropic microemulsion phases of ternary systems including a nonionic surfactant
AU Tondre, C.; Robert, A.; Burger, C.
CS CNRS, Univ. NANCY I, Vandoeuvre-les-Nancy, 54506, Fr.
SO Journal of Dispersion Science and Technology (1986), 7(5), 581-97
AB The advantages and limits of an automatic procedure which permits the fast **detn.** of the **compn.** limits of isotropic microemulsion phases of water-oil-surfactant systems are **detd.** This system is based on detecting the **temp.** defining the lower and upper miscibility curves by the change of **turbidity** to study the solubilization of **oil** or water in binary mixts. of nonionic surfactants and water or **oil** and then reconstructing the usual ternary **phase diagram** at any chosen **temp.** The method was esp. well suited for the investigation of systems including nonionic surfactants which are very sensitive to **temp.** changes. Four systems were tested including hydrogenated as well as fluorinated surfactants and **oils**. Data obtained for systems having neat **turbidity** changes were easy to interpret. For systems contg. a liq. cryst. phase the **turbidity-temp.** curve was more difficult to interpret.

L13 ANSWER 68 OF 75 CA COPYRIGHT 2004 ACS on STN
AN 94:20853 CA
TI Effect of pressure on the solution behavior of nonionic surfactants in water
AU Nishikido, Nagamune; Yoshimura, Nobuyoshi; Tanaka, Mitsuru
CS Fac. Sci., Fukuoka Univ., Fukuoka, 814, Japan
SO Journal of Colloid and Interface Science (1980), 78(2), 338-46
AB The **phase diagrams**, i.e., the pressure-**temp.**-**compn.** diagrams of each system, tetra-, penta-, and hexaoxyethylene dodecyl ether (C12E4, C12E5, and C12E6, resp.) vs. water, were **detd.** by the use of the observation that the transmittance of the soln. changes sharply with the change of the dissolved state of the solute. The **temp.**-pressure **phase diagrams** involve the regions of the **micellar** soln., the liq. surfactant phase + water phase, the hydrated solid + water phase, and the liq. crystal + water phase. The **cloud temp.** increased and its increasing rate became smaller with increasing pressure. By considering that the **cloud temp.-compn.** curve is a liq.-liq. mutual solv. curve and the idea of "assocd. soln." of Prigogine and Defay, the

thermodn. quantities (enthalpy, entropy, and vol.) accompanied by the sepn. of the liq. surfactant phase from the water phase above the **cloud temp.** for the C12E5-water system are derived. The enthalpy and entropy changes were pos. and depended little on pressure, while the vol. change was pos. and decreased, tending to zero, with the pressure up to 300 MPa. This suggests that hydrophobic bonding as well as the partial dehydration of oxyethylene groups of surfactant contribute to the sepn. of the liq. surfactant phase from the water phase. In the **comprn.-pressure** diagram close to the regions of the **micellar** soln. and the hydrated solid + water phase for the C12E5-water system, a sudden increase in the solv. of surfactant at a certain pressure was found with decreasing pressure and at const. **temp.**, which corresponds to the Krafft phenomenon and can be attributed to the effective dissoln. of surfactant as a **micellar** form in water.

L13 ANSWER 73 OF 75 CA COPYRIGHT 2004 ACS on STN
AN 54:89685 CA
OREF 54:16991b-d
TI Solubilization of long-chain alkyl compounds by nonionic surfactants and **cloud** formation in such systems
AU Nakagawa, T.; Tori, K.
CS Shionogi & Co., Amagasaki
SO Kolloid-Zeitschrift (1960), 168, 132-9
AB **Cloud** points and **concn.** of solubilizate (I) at satn. (i.e. greatest **concn.** remaining transparent) were **detd.** for various **concns.** of n-C8H18, C10H22, C12H26, n-C8H17OH, C10H21OH, C12H25OH, n-C10H21Cl, C10H21NH2, and n-C9H19CO2H solubilized in 1% aq. n-C10H21(OCH2CH2)10OMe (prepn. given). The intersecting **cloud** point and satn. curves on a **temp.-concn. plot** define a **phase diagram**, which consists of domain A, below satn. and below the **cloud** point, a single phase; domain B, above satn. and below the **cloud** point, an aq. phase contg. dissolved surfactant (II) and I in equil. with a 2nd phase consisting of almost pure I; domain C, above satn. and above the **cloud** point, an aq. phase satd. with II and I in equil. with a 2nd phase consisting of I, II, and some water. Domain D is the special case of domain C, where I and II are immiscible and thus there are 3 phases. Evidence for these distributions was obtained by addn. of dyes sensitive to II **micelles**, e.g. water-sol. pinacyanol chloride and oil-sol. Sudan III.

=> log y

STN INTERNATIONAL LOGOFF AT 14:43:43 ON 21 OCT 2004